

Boredom as a Seeking State: Boredom Prompts the Pursuit of Novel (Even Negative) Experiences

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Building on functional models of emotion, we propose that boredom creates a seeking state that prompts people to explore new experiences, even if those experiences are hedonically negative. Specifically, as emotional responses fade, boredom motivates the pursuit of alternative experiences that differ from the experience that resulted in boredom. Participants who reported a higher degree of boredom after a neutral task were more likely to choose negative experiences (Study 1). Compared with a low-boredom condition, participants in a high-boredom condition desired novel experiences and, as a result of this desire, were more likely to choose novel negative experiences (Study 2). In Study 3, participants were made bored by positive or negative stimuli. Participants in the positive-boredom conditions were more likely to choose a novel experience that was more negative; participants in the negative-boredom conditions were more likely to choose a novel experience that was more positive. These findings reveal that boredom motivates people to seek out novel experiences that elicit different (even more negative) feelings.

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The classic children's book *Alice's Adventures in Wonderland* opens with Alice falling down a rabbit hole (Carroll, 1968). At the start of the fall, Alice is terrified and attempts to make out what is beneath her. After falling for some time, however, Alice becomes distracted and begins looking around her, opening cabinets, and speculating about the hole. Of course, Alice is a fictional character in a children's story meant for entertainment. However, her experience reflects a fundamental truth about human experience—emotions fade over time, and as they fade, we begin to experience boredom and seek out new experiences. We propose, and test using an experimental paradigm, that the emotion of boredom signals that a current activity is no longer fulfilling (i.e., no longer elicits affect) and drives people to pursue novel (even hedonically negative) experiences.

The Study of Boredom

Boredom has long been considered a discrete emotion (Damrad-Frye & Laird, 1989; Izard, 1977; Scherer, 1984), but boredom as a state has received relatively little theoretical or empirical attention until recently (Fahlman, Mercer, Gaskovski, Eastwood, & Eastwood, 2009; Smith, 1981; van Tilburg & Igou, 2011). This

lack of attention is partially attributable to the fact that boredom has historically been considered an ephemeral and inconsequential state (Eastwood, Cavaliere, Fahlman, & Eastwood, 2007; O'Hanlon, 1981). Yet the frequency with which boredom is experienced (Eastwood, Frischen, Fenske, & Smilek, 2012), the correlations between propensity to become bored and a host of risk-taking behaviors (e.g., Abramson & Stinson, 1977; LePera, 2011; Mercer & Eastwood, 2010), and the negative consequences boredom has in achievement settings (Pekrun, Goetz, Daniels, Stupnisky, & Perry, 2010; Pekrun, Hall, Goetz, & Perry, 2014) suggest that boredom may be more than an inconsequential fleeting state and that it is a construct worthy of study. As is the case with many emotions, there are ongoing debates about how to define and operationalize boredom (Bench, Yaughner, & Lench, 2015; Eastwood et al., 2012; Raffaelli, Mills, & Christoff, 2017). Indeed, boredom has been defined in terms of optimal arousal (Zuckerman, 1979), an inability to sustain attention (Eastwood et al., 2012), and a desire for meaningful stimulation (Barbalet, 1999; van Tilburg & Igou, 2011; van Tilburg & Igou, 2012). Several recent definitions have approached boredom from a functional perspective, suggesting boredom prompts disengagement from a current task and the seeking of alternatives (Bench & Lench, 2013; Eastwood et al., 2012; Elpidorou, 2014; Merrifield & Danckert, 2014; van Tilburg & Igou, 2011).

Boredom is experienced frequently and occurs in daily life across a variety of cultures (Eastwood et al., 2012; Ng, Liu, Chen, & Eastwood, 2015; Sundberg, Latkin, Farmer, & Saoud, 1991). The vast majority of studies on boredom have focused on individual differences in boredom frequency and not the experience of the state of boredom. These studies have found that boredom proneness (i.e., the frequency of experiencing bore-

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dom) is associated with a host of negative behaviors, including substance abuse (Lee, Neighbors, & Woods, 2007; LePera, 2011), binge eating (Abramson & Stinson, 1977), and gambling (Mercer & Eastwood, 2010). The research literature on state boredom is still relatively small (but growing). Although findings related to trait boredom are informative, it is quite possible that state and trait boredom have unique causes and consequences (Vodanovich, 2003), similar to other marked differences found between state and trait representations of emotional states (e.g., anxiety; Broadbent & Broadbent, 1988; Gaudry, Vagg, & Spielberger, 1975).

Functional Theories of Emotion

Evidence suggests that a distinguishing feature of emotions is that they are reactions to specific events (Eich, Kihlstrom, Bower, Forgas, & Niedenthal, 2000; R. L. Kaplan, Levine, Safer, & Lench, 2016; Verduyn, Van Mechelen, & Tuerlinckx, 2011). That is, emotions are targeted toward or about a specific event (R. L. Kaplan et al., 2016; Lench, Tibbett, & Bench, 2016; Verduyn et al., 2011), or are the response to current activities, such as the relation between task meaning and challenge (e.g., Pekrun, 2006). Although functional accounts of emotion vary, they agree that emotions evolved for a purpose (e.g., Barrett, 2012; Carver, 2004; Lench, Flores, & Bench, 2011; Lindquist, 2013; Lerner & Tiedens, 2006). Functional accounts of emotion posit that (a) emotions are elicited in particular types of situations marked by discrepancies between goals and the environment (i.e., between what people want and what they have; Carver, 2004; Frijda, 1987; Lench et al., 2011), and (b) emotions are coordinated responses across systems (behavior, cognition, and physiology) that serve to resolve the situation that elicited the emotion (Arnold, 1960; Ekman, 1992; Frijda, 1987). Thus, from a functional perspective, emotions are elicited by specific situations containing a problem and facilitate a response to that problem.

In support of functional accounts of emotion, there is evidence that, across individuals and cultures, the appraisal of a situation in relation to goal status predicts emotions (Moors, Ellsworth, Scherer, & Frijda, 2013; Scherer & Meuleman, 2013; Siemer, Mauss, & Gross, 2007; Stein & Hernandez, 2007). Indeed, one study of daily emotional lives found that nearly 70% of specific emotional experiences could be predicted from reports of people's perceptions of the relevance of events to their goals (Oatley & Duncan, 1994). There is also evidence that emotions result in coordinated changes across systems. A meta-analysis of nearly 700 experimental studies supported that emotions (anger, anxiety, happiness, and sadness) result in organized responses across systems (behavior, cognition, and physiology), and that these coordinated responses are in directions consistent with functional theories (Lench et al., 2011). Additionally, algorithms can predict self-reported emotions from behavioral and physiological changes (Bailenson et al., 2008; Kragel & Labar, 2013). Taken together, this evidence supports that emotions signal that action is needed to accomplish goals (Carver, 2004) and organize systems to respond to particular situations (Lench, Bench, & Flores, 2013; Lench et al., 2011; however, evidence for the modularity of emotions remains elusive: Lindquist, 2013).

Pursuit of Alternative Experiences

According to a functional account, emotions signal that action is required for goal accomplishment (notably, actions stemming from intrinsic motivation do not serve goal accomplishment, and emotions related to these actions may also not relate to goals; Pekrun et al., 2010). However, these accounts do not provide much detail into when and why people will stop pursuing a goal and start something new. Although it has been proposed that extreme sadness, indicating that a goal is irrevocably lost, can result in disengagement from a current goal (e.g., Carver, 2004; Lench et al., 2016), this does not account for other scenarios in which people pursue new goals without extreme sadness. Indeed, there is ample evidence that people regularly disengage from goals and seek new goals (e.g., Aarts, Custers, & Holland, 2007; Shah & Kruglanski, 2003). A model derived from functional accounts is presented in Figure 1 to provide a context for understanding the role of boredom in emotional experience (Carver, 2004). As shown, happiness is experienced when one is doing well at getting something desirable, and anger or sadness are experienced when one is doing less well. Relief is experienced when one is doing well at avoiding something undesirable, and anxiety is experienced when one is doing less well.

We propose that, as emotional responses fade over time or across contexts, boredom motivates the pursuit of alternative goals (Figure 1; Bench & Lench, 2013). In other words, it functions as a signal that the current situation is no longer fulfilling and

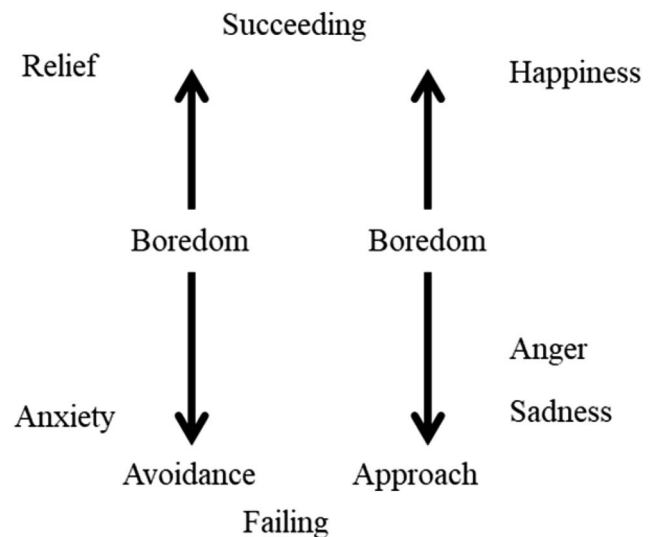


Figure 1. The role of boredom in a functional account of emotion. Boredom is proposed to motivate the pursuit of an alternative experience as the intensity of a current experience fades. Boredom is then related to both avoidance and approach, as it encourages avoidance from a current experience and approach toward an alternative. The arrows represent current progress toward goals, with happiness experienced when one is doing well at attaining something desirable, and anger or sadness are experienced when doing less well. Relief is experienced when doing well at avoiding something undesirable, and anxiety when doing less well (adapted from Carver, 2004). Boredom appears in the middle of the arrows, as it is signaling that an alternative experience should be pursued as the current experience is not serving goal attainment.

prompts people to seek new experiences—in particular, experiences that will elicit emotional responses. Using this framework, there are two related types of experiences that we propose will be attractive to people when bored. First, *novel* experiences are likely to be attractive. The desire for novelty appears early and universally—human infants' preference for novel stimuli is so fundamental that it is the basis of the eye-gaze methodology employed in developmental work (Flavell, 1977; Hirschman, 1980). Although the desire for novelty is ubiquitous, there is suggestive evidence that this desire could be heightened during the experience of boredom. Animal models of boredom have found that caged animals deprived of exposure to stimulating activities demonstrated more interest in ambiguous novel stimuli than caged animals that have access to stimulating activities (Meagher, Campbell, & Mason, 2017; Meagher & Mason, 2012). In humans, numerous studies have demonstrated that boredom is reliably induced from repetitive tasks (e.g., Mann & Cadman, 2014; Markey, Chin, Vanepps, & Loewenstein, 2014; Merrifield & Danckert, 2014; Sansone, Weir, Harpster, & Morgan, 1992; van Tilburg & Igou, 2012), suggesting that the lack of novelty is critical to the experience of boredom. There is also evidence that repeated uninterrupted exposure to stimuli results in decreased liking (Berlyne, 1970). At the trait level, participants that are high in the propensity to become bored have been found to demonstrate a stronger preference for novelty relative to participants who are less likely to become bored (Malkovsky, Merrifield, Goldberg, & Danckert, 2012). Based on the evidence that a lack of novelty results in boredom and that a lack of novelty decreases preference, we postulated that the experience of boredom would heighten the desire for, and choice to undergo, novel experiences.

Second, novel experiences that *change one's current affective state* are likely to be attractive to people experiencing boredom. Importantly, a change in affective state may be a subtype of novelty in general, as change from a current affective state to any alternative could be considered novel. Emotional responses fade over repeated exposure; even stimuli that initially elicit strong responses will have less effect after repeated exposure (Frederick & Loewenstein, 1999; Gilbert, Lieberman, Morewedge, & Wilson, 2004). This occurs even when stimuli are presented subliminally (Bornstein, 1989). Boredom is frequently induced from repetitive *mundane* tasks, such as turning pegs on a pegboard (Markey et al., 2014), tracing lines (van Tilburg & Igou, 2012), or watching a video of others hanging laundry (Merrifield & Danckert, 2014). However, according to our framework, boredom can result from any repetitive experience, even if that experience is positive or negative. Thus, a key prediction derived from our framework is that the desire for novelty associated with boredom will include increased desire for stimuli that will change the current affective state. In other words, people who are bored from repeated exposure to hedonically negative stimuli should prefer positive experiences. Similarly, people who are bored from repeated exposure to hedonically positive stimuli should prefer negative experiences. This latter prediction is particularly intriguing given that motivation to pursue pleasure (positive experiences) and avoid pain (negative experiences) has played a prominent role in most economic and psychological explanations of human behavior (Edwards, 1962; Erber & Erber, 2000; Mellers, 2000; Von Neumann & Morgenstern, 1944). Past research has considered a variety of reasons for people to pursue experiences that are more negative.

For instance, negative emotional states have been found to be desired during times that they offer a benefit (Tamir, 2009; Tamir, Mitchell, & Gross, 2008). People will choose to increase their anger when they have a goal that requires confrontation with another (Tamir & Ford, 2012). There is also evidence that people can have multiple reactions to experiences that might typically be considered “negative” (e.g., disgusting images can elicit fascination, or morbid curiosity; Oosterwijk, Lindquist, Adebayo, & Barrett, 2016).

Previous research has suggested that boredom may encourage the pursuit of negative experiences. For instance, in a series of studies focused on mind wandering, Wilson and colleagues (2014) placed participants in a room for several minutes with no form of external stimulation except the option to give themselves a mild electric shock. Just under half of participants (i.e., 43%; and the majority of male participants, 67%) chose to shock themselves at least once, despite having previously experienced the shock and having stated that they would pay to avoid the shock in the future. This demonstrates that participants would rather experience a mild negative experience (i.e., an electric shock) than be left with nothing but their thoughts. In a study looking at the impact of boredom on consumer choice, participants paid a higher price for entertainment when the entertainment allowed them to avoid an anticipated state of boredom (Dal Mas & Wittmann, 2017). This finding suggests that even the anticipation of boredom can result in costly decision making and has negative financial consequences. Self-reported boredom has been found to relate to choices of positive and negative experiences (Havermans, Vancleef, Kalamitanos, & Nederkoorn, 2015). In these studies, participants watched an hour-long repetitive video, during which they could eat candy and could give themselves painful shocks. The more bored that participants reported they were during the video, the more candy they ate and the more shocks they gave themselves. Although this study did consider the relationship between boredom and the choice of negative and positive experiences, it did not consider a mechanism for this relationship. Finally, a recent study found that state boredom, but not sadness, resulted in self-administering painful electric shocks. These findings suggest that people did not self-administer shocks to alleviate a negative affective experience, but rather that the shocks were chosen to break up the monotony of boredom (Nederkoorn, Vancleef, Wilkenhöner, Claes, & Havermans, 2016). Taken together, these findings illustrate that boredom can prompt choices to engage in experiences that would generally be considered negative, and that these choices are not made solely to alleviate the negative experience of boredom.

The Present Investigation

The goal of the current investigation was to test the hypothesis that boredom motivates the pursuit of novel and affectively different experiences. Study 1 presents an initial examination of the relationship between the experience of boredom and preference for novel experiences. In Study 2, participants were randomly assigned to experience high or low levels of boredom resulting from repeated exposure to neutral stimuli, and then made a choice regarding the type of stimuli they would experience next. In Study 3, participants were assigned to experience boredom from repeated exposure to either positive or negative stimuli, and then chose the

type of stimuli they would experience. We expected that boredom would motivate a choice for novelty—participants bored by negative stimuli would choose a more positive experience, and those made bored by positive stimuli would choose a more negative experience.

Study 1

In Study 1, participants were made bored through exposure to repetitive neutral images and then given a choice—more of the same or to view more negative, disgusting images. We expected that higher levels of state boredom would predict choosing to view the more negative images. We also included a commonly used measure of the trait *boredom proneness*—a dispositional tendency to experience boredom frequently—which has previously been shown to relate to preferences for high-risk, high-pleasure options (Vodanovich, 2003). This was included to examine the relationship of trait and state boredom to choice, given past findings that trait boredom predicts risk-taking behaviors.

Method

Participants. Fifty-five college students (67% female) completed the study for partial course credit in their introduction to psychology course. Four participants were removed because of data loss from computer or experimenter error. Data was collected over the last 2 weeks of one semester, with a goal of obtaining no fewer than 50 participants. This design and sample size yielded power of .81 (i.e., an R^2 of .17 could be detected at $p < .05$). All studies were approved by the Texas A&M University Institutional Review Board prior to data collection.

Procedure. Images were chosen from the International Affective Picture System (IAPS) image database (Lang, Bradley, & Cuthbert, 2008)¹ that had standardized ratings indicating that they were neutral to slightly positive on valence (IAPS $M = 5.18$) and low to neutral on arousal (IAPS $M = 3.30$). We also administered the selected images to a small group of pilot participants ($n = 26$), who rated the images on a scale ranging from *completely negative* (1) to *completely positive* (9). The selected images were rated near the scale midpoint of neutral ($M = 5.63$, $SD = .63$). One image that was pilot tested (IAPS Number 7017; a VHS tape) was not included in the final image set, as it was rated very positively in our student population ($M = 7.43$, $SD = 1.01$).

At the start of the study, participants were told they would be viewing a series of images and to pay careful attention, as they would be asked to answer questions about the images at the end of the study. Before each image, a fixation cross was displayed in the middle of the screen for 500 ms. Immediately following the fixation cross, one of the 19 images appeared and remained on the screen for 5 s. Participants viewed each of the images between three and six times for a period of about 8 min.² The images were presented in random order. Participants rated how they currently felt on a scale ranging from *incredibly entertained* (1) to *incredibly bored* (9).

Participants were then faced with a choice between two sets of images that they would view next. One set was described as similar to the neutral images they just viewed; specifically, they were told, “This set of images is similar to the set of images you just saw.” For the other set, they saw three sample negative images (cock-

roaches, a destroyed building, dirty dishes; IAPS Numbers 1274, 9471, 9395; these images were rated as more negative than the neutral images by the pilot sample, $M = 2.93$, $SD = .90$, $t[25] = 15.95$, $p < .001$, $d = 6.38$). Participants were told, “The rest of the images in this set are similar to those sample images.” Before each sample image, a fixation cross was displayed for 500 ms in the middle of the screen. Each sample image remained on the screen for 5 s. The order of viewing the options for the same images or negative images was counterbalanced. After viewing all sample images, participants chose their image set by pressing “A” or “B” on the keyboard; this choice was the dependent variable in the study. After making their choice, participants were informed that they would not actually view the second set of images.

Participants also completed the Boredom Proneness Scale (BPS; $\alpha = .72$; Farmer & Sundberg, 1986). The BPS is the most widely used measure of trait boredom (Vodanovich, 2003), and includes 28 items, such as “Many things I do are repetitive and monotonous,” rated on a scale ranging from *highly disagree* (1) to *highly agree* (7). Additional individual difference findings across all studies are presented in a separate section before the General Discussion.

Results and Discussion

Participants reported being bored ($M = 7.88$, $SD = 1.73$) from the induction, with mean reported boredom higher than the midpoint of the scale (5), labeled “Neither bored or entertained,” $t(51) = 11.91$, $p < .001$, $d = 3.34$.

Overall, 55% of participants chose to view the more negative image set. This is of considerable interest, as it is counter to the generally held assumption that hedonically positive experiences should be preferred (e.g., Tice, Bratslavsky, & Baumeister, 2001).

A logistic regression with choice of image set regressed on state boredom and trait boredom revealed that state boredom predicted choice (Wald $\chi^2 = 5.14$, $\beta = 0.49$, $p = .023$, $e^{\beta} = 1.64$). Specifically, participants were more likely to choose the more negative image set, as they experienced more boredom. Trait boredom did not predict choice of image set (Wald $\chi^2 = 0.09$, $\beta = 0.01$, $p = .77$, $e^{\beta} = 1.01$), and there was no interaction between state and trait boredom (Wald $\chi^2 = 2.35$, $\beta = 0.04$, $p = .13$, $e^{\beta} = 1.04$). (State boredom also predicted choice of image set when entered alone, Wald $\chi^2 = 4.17$, $\beta = .40$, $p = .041$, $e^{\beta} = 1.49$. Trait boredom did not predict choice of image set when entered alone, Wald $\chi^2 = 1.44$, $\beta = 0.03$, $p = .23$, $e^{\beta} = 1.03$. Finally, trait boredom did not predict state boredom, $\beta = -0.005$, $t[49] = -0.26$, $p = .80$.)

The methodology of Study 1 included a potential confound. Participants made bored by the image set saw the more negative novel image option first, and were then reexposed to the neutral image option that made them bored. As a result, participants could have experienced dishabituation: an increased response to a habit-

¹ IAPS image numbers: 1350, 1903, 5395, 5471, 5510, 5740, 7017, 7019, 7026, 7043, 7090, 7160, 7170, 7179, 7187, 7233, 7247, 7255, 7365, 7547.

² The number of times each image was presented was altered, as previous research has found that repeated exposure to the same stimulus results in increased boredom, yet increasing the duration that a stimulus is presented, independent of the number of presentations, does not hold the same effect on boredom (Bornstein, 1989; Van den Bergh & Vrana, 1998).

uated stimulus when being exposed to it after being exposed to another stimulus (e.g., Rankin et al., 2009). However, the order of presentation of the image choice options did not predict choice of image set (Wald $\chi^2 = 0.10$, $\beta = 0.56$, $p = .921$, $e^{\beta} = 1.06$). The possibility of using habituation/dishabituation paradigms to study the experience of boredom is an interesting avenue for future research.

State boredom predicted choice, such that participants were more likely to choose the more negative image set when experiencing higher levels of state boredom. This provides evidence that boredom prompts people to seek out novel experiences, even when hedonically negative.

Study 2

Trait boredom did not predict choice in Study 1. However, the correlational nature of Study 1 limits the conclusions that can be made. Study 2 therefore included an experimental manipulation of boredom. Bored participants in Study 1 were more likely to choose a more negative option, but the more negative option was also the only novel option available. As a result, it is unclear whether participants made their choice on the basis of novelty alone or whether change in affective state was also important to their choice. Therefore, Study 2 included a choice among options that were all novel but varied in valence. Study 2 also included a measure of the desire for novelty to assess whether desire for novelty mediated the relationship between boredom and choice of a negative experience.

Method

Participants. One hundred fifty-three (65% female) college students completed the study for partial course credit in their introduction to psychology course. Data was collected over one academic semester with a goal of at least 150 participants. Three participants were removed because of data loss as a result of experimenter or computer error, with the final sample consisting of 150 participants. In this study, we tested desire for novelty as a mediator to the relationship between boredom and choice; our sample size exceeded the size of 115 recommended by Fritz and Mackinnon (2007) to achieve .8 power in a mediational design with our observed effects.

Procedure. As in Study 1, participants were told they would view a set of images and to pay attention to the images. They viewed 15 of the neutral images used in Study 1.³ Participants were randomly assigned to one of two conditions—low boredom or high boredom. In the low-boredom condition, participants viewed the image set either three times or no times (for a duration of either 0 min or 3.75 min). The groups were combined as both groups reported a low level of boredom and they did not differ on any other measure (all t s < 1.50, all p s > .14). In the high-boredom condition, participants viewed the image set 10 times (for a total duration of about 12.5 min). A total of ten views was selected based on pilot testing ($n = 63$) that revealed that more boredom was reported on a scale ranging from *not at all bored* (1) to *extremely bored* (9) after the induction ($M = 7.37$, $SD = 1.96$) than before the induction ($M = 3.94$, $SD = 2.15$), $t(62) = 9.53$, $p < .001$, $d = 2.42$, with no significant increase in boredom after 10 views (i.e., 10 views did not differ from 12 or 14 views).

Participants were then given an option of two sets of images to view next. They were instructed,

You will now be viewing another set of images. This set of images will be displayed for the same amount of time as the previous set. You will see samples of two possible sets of images. The sample images are similar to all of the images in the set they represent. You will have your choice of which of the sets of images you will view. Please choose the set you would like to see based on the sample images you are shown.

The more negative sample set was the same three negative images used in Study 1. The other sample image set consisted of three novel neutral images (a park bench, a light bulb, a plate; IAPS Numbers 7026, 7170, 7233). The set of sample images that was displayed first was randomly generated, and all sample images in that set were displayed before the next set was shown. The image sets were labeled “Set A” or “Set B,” with neutral or negative images counterbalanced between Sets A and B. Before each image appeared, a fixation cross was placed in the center of the screen for 500 ms; the sample image followed and remained on the screen for 5 s. After viewing both sets of sample images, participants chose which image set they would like to view; this choice was the primary dependent variable in the study.

After choosing their set of images, participants reported their current level of boredom on a scale ranging from *not at all* (1) to *incredibly* (9). Participants also reported the influence a desire for something new had on their choice “How much did a desire for something new motivate your choice?” Responses were given on scale ranging from *not at all* (1) to *completely* (7).⁴ Trait boredom was measured by BPS scores, but did not predict desire for novelty, state boredom, or choice of image set (all p s > .30) and is not reported further. After completing all scales, participants were told that they would not view the second set of images and were debriefed.

Results and Discussion

Boredom manipulation. Participants in the high-boredom condition reported being more bored ($M = 7.20$, $SD = 1.78$) than those in the low-boredom condition ($M = 4.93$, $SD = 1.53$), Levene’s $F = 6.46$, $p = .02$, $t(85.72) = 7.70$, $p < .001$, $d = 1.66$. Thus, the manipulation effectively elicited a high versus low state of boredom. Further, participants in the high-boredom condition reported a greater desire for novelty ($M = 4.74$, $SD = 1.85$), the proposed mediator, than those in the low-boredom condition ($M = 3.69$, $SD = 1.85$), $t(148) = 3.28$, $p = .001$, $d = .54$.

Choice of image set. Overall, 23% of participants chose to view the more negative image set. Unlike Study 1, participants had

³ IAPS numbers: 1350, 1903, 5395, 5471, 5510, 5740, 7019, 7043, 7160, 7179, 7187, 7247, 7255, 7365, 7547.

⁴ The mediator (desire for novelty) was reported after participants made their choice of image set. Measurement of a proposed mediator after the dependent measure is acceptable when the dependent variable does not impact the mediator (Lench, Taylor, & Bench, 2014; Shadish, Cook, & Campbell, 2002). Further, the changes in the mediator were predicted by the manipulation, demonstrating the manipulation was indeed impacting the mediator (i.e., boredom condition resulted in differences in desire for novelty). In addition to this point, the mediator was a self-reported justification of behavior (i.e., a causal attribution) and should be investigated more directly in the future. This was also the case for Study 3.

a choice between neutral and more negative novel options. Thus, it is particularly striking that a sizable proportion of participants chose the more negative option even when they had other novel experiences available.

An indirect effect of boredom condition (low, high) on choice of image set was expected, with the relationship between condition and choice mediated by desire for novelty. Specifically, it was predicted that participants in the high-boredom condition would have a stronger desire for novelty, and an intense desire for novelty would predict choice of an alternative experience that was both novel and more negative. To examine this relationship, a mediation analysis using 10,000 bootstrapped samples was conducted utilizing the PROCESS script from Hayes (2013), which is designed for use with dichotomous outcomes. As can be seen in Figure 2, boredom condition (low, high) predicted desire for novelty ($b = 1.05, t = 3.28, p = .001, R^2 = .068$), with participants in the high-boredom condition reporting a greater desire for novelty compared with those in the low-boredom condition. Desire for novelty, in turn, predicted choice of image set (coded: 0 = neutral, 1 = negative; $b = .26, z = 2.29, p = .022, R^2_{\text{McFadden}} = .042$), with a stronger desire for novelty predicting the choice of the more negative image set. In the mediational model, there was no direct effect of condition on whether or not participants chose the more negative images ($b = .19, z = 0.44, p = .66, R^2_{\text{McFadden}} = .007$). Rather, consistent with predictions, there was an indirect effect of condition on whether or not participants chose the more negative images (indirect effect = .27, 95% CI [.04, .69]). Thus, desire for novelty mediated the relationship between boredom condition (low, high) and choice of a novel more negative experience (Hayes, 2013; MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). In other words, participants in the high-boredom condition reported greater desire for novelty than those in the low-boredom condition, and greater desire for novelty resulted in a greater likelihood of choosing the more negative image set.

These findings provide further evidence that boredom prompts people to select novel experiences. Participants in a high-boredom condition, relative to those in a low-boredom condition, were more likely to choose a novel experience that would also alter their affective state over a novel experience that would not alter their affective state. The findings also demonstrate that boredom encourages a desire for novelty. That is, consistent with the theoretical model, greater boredom motivated greater desire for a new experience and consequently being more likely to choose a novel more negative experience.

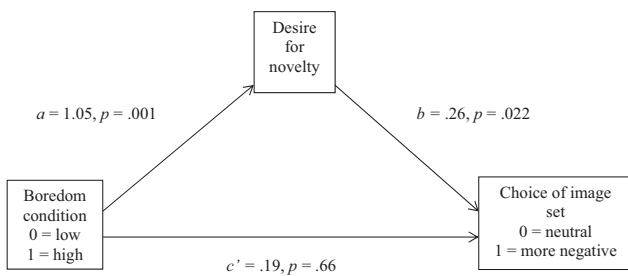


Figure 2. Desire for novelty as a mediator for boredom and choice of image set (Study 2). Boredom indirectly affected choice of image set through its influence on desire for novelty (indirect effect = .27, 95% CI [.04, .69]).

Study 3

Studies 1 and 2 provide evidence that boredom results in a preference for novel experiences, even when those experiences are more negative than a boredom-eliciting experience. In both studies, however, boredom was induced by repeated exposure to neutral stimuli, and participants chose between another neutral experience or a more negative experience. To further explore the relationship between boredom and a desire to change affective state, Study 3 elicited state boredom from repeated exposure to positive or negative images. Typically, boredom inductions consist of neutral stimuli or tasks (e.g., copying a phonebook or reference section, turning pegs on a board; Markey et al., 2014). However, if the functional role of boredom is to encourage the pursuit of alternative experiences when a current experience is no longer rewarding (Bench & Lench, 2013), boredom should also be experienced when positive or negative experiences have been repetitious. Study 3 therefore included repetitious exposure to positive and negative stimuli. In Study 3, participants were also provided with a choice among multiple novel options that varied in affective valence. Specifically, participants were given the opportunity to choose an affective experience that was more positive, more negative or affectively the same as, the experience that made them bored. To identify “more positive” and “more negative” states, we relied, first, on the affective valence of the images (i.e., were they classified as positive or negative). Second, we used the arousal rating of the images, as past research has shown that more arousing negative states are more negative than less arousing negative states, and that more arousing positive states are more positive than less arousing positive states (e.g., Kuppens, Tuerlinckx, Russell, & Barrett, 2013; Russell, 1980). However, it is important to consider that more arousing positive states are not always preferred, as some cultures prefer less arousing positive experiences to more arousing positive experiences (e.g., Sims, Koopmann-Holm, Jiang, Fung, & Tsai, 2018). We also included two new potential mediators: desire for something negative and desire for something positive. These were included in Study 3 because the design allowed for multiple novel choices (and therefore a measure of “desire for novelty” alone, as was used in Study 2, would not well represent the differences among the options). We predicted that participants who were bored from a positive experience would be most likely to choose a more negative subsequent state. This relationship was expected to be mediated by a desire to experience something negative, such that participants who viewed positive images would have a stronger desire to experience something negative, and this would predict choice of a more negative experience. We also expected participants made bored from a negative experience would be most likely to choose a more positive subsequent state, and that desire for positive experiences would mediate this relationship, such that participant who viewed negative images would report a stronger desire to experience something positive, and this would predict choice of a more positive experience.

Method

Participants. Undergraduate students ($n = 150$; 62% female) completed the study for partial course credit in their introduction to psychology course. Data was collected over one academic semester, with a goal of at least 150 participants. Five participants were removed because of data loss as a result of experimenter or

computer error; thus, the final sample consisted of 145 participants. In this study, we tested desire for negative experience as a mediator of the relationship between boredom and choice; our sample size was below the size of 396 recommended by Fritz and Mackinnon (2007) to achieve .8 power in a mediational design with our observed effects. This was because of a smaller than anticipated observed effect of the mediator on the outcome variable.

Procedure. The study employed a similar manipulation to Study 2. However, in this study, participants were randomly assigned to view one of four sets of images (intensely positive, moderately positive, intensely negative, moderately negative). For all conditions, participants saw 15 images, selected from the IAPS image database (Lang et al., 2008),⁵ five times each, for a total time viewing images of about 6.5 min. According to standardized IAPS ratings, the image sets differed by affective valence, $F(3, 68) = 624.43, p < .001, \eta^2 = .96$, with the positive images being more positive ($M = 7.31, SD = .26$) than the negative images ($M = 2.91, SD = .56$), Levene's $F = 19.40, p < .001, t(49.29) = 42.75, p < .001, d = 10.08$. The image sets also differed by their arousal rating, $F(3, 68) = 188.92, p < .001, \eta^2 = .053$, with high-arousal images being more arousing ($M = 6.53, SD = 0.40$) than low arousing images ($M = 4.04, SD = 0.49$), $t(70) = 23.57, p < .001, d = 5.57$.

Participants were then told they would view a second set of images, and told about their options, as in Study 2. In this study, they were given four different image sets to choose from. These options consisted of three novel images of each type.⁶ The sample image sets were presented in random order and were assigned labels of Image Set A, B, C, or D, depending on their order of appearance; this choice was the primary dependent variable.

Participants then rated their current level of boredom, as in Study 1, and reported how much their selection was motivated by a desire for something negative, "How much did a desire for something negative motivate your choice?"—and their desire for something positive, "How much did a desire for something positive motivate your choice?" Responses were given on a scale ranging from *not at all* (1) to *completely* (7).

Results and Discussion

Preliminary analyses. Condition was not expected to create a difference in state boredom in this study, as all participants were exposed to their respective image sets for the same amount of time. To confirm this, a 2 (valence: positive, negative) \times 2 (arousal: moderate, high) ANOVA was conducted. As predicted, there was no effect of valence condition or intensity, and there was no interaction effect (all F s < 1.56 , all p s $> .21$; see Table 1 for descriptive statistics by condition). Instead, all participants reported a moderate level of boredom ($M = 5.79, SD = 1.62$), with mean reported boredom higher than the midpoint of the scale (5), labeled "Moderate boredom," $t(144) = 5.91, p < .001, d = .99$. Thus, there was no difference across conditions in state boredom, and the induction of boredom was effective. This suggests that boredom can result from positive and negative experiences.

To examine the impact of the manipulation on desire for affectively different experiences, two ANOVAs were conducted on reported desire for positive and negative experiences, with valence (positive, negative) and arousal (moderate, high) as between-

subject factors. Valence condition affected the desirability of negative experiences, $F(1, 141) = 8.88, p = .003, \eta^2 = .02$, such that participants who viewed positive images reported a stronger desire for a negative experience ($M = 2.49, SD = 1.73$) than those who viewed negative images ($M = 1.72, SD = 1.41$). There was not a main effect of valence condition on desire for positive experience, $F(1, 141) = 0.22, p = .64, \eta^2 = .002$, as participants who saw positive images reported a similar desire for positive experiences ($M = 5.40, SD = 1.79$) as participants who saw negative images ($M = 5.24, SD = 1.93$).

We also considered the impact of arousal on reported desire for affective experiences. In the ANOVA for desire for positive experiences, there was a main effect of arousal on the desire for positive experiences, $F(1, 141) = 4.69, p = .032, \eta^2 = .003$, with participants in the moderate arousal condition reporting a stronger desire for positive experiences. There were no other main effects of arousal on any outcome (all p s $> .14$), and there were no interaction effects of valence and arousal (all p s $> .15$). Finally, arousal was regressed on choice of image set, and arousal did not predict the type of images chosen ($b = -.12, t = .84, p = .40$). As arousal did not impact state boredom or desire for negative experience, and arousal did not predict choice of image set, subsequent analyses focused on the valence of conditions.

Choice of image set. Overall, 74% of participants chose an image set that differed from the set that induced boredom. Looking at the type of choices made: 22% of participants chose a set that was more negative than the one that elicited boredom, 26% chose a set with the same valence, and 52% chose a more positive set. Nearly one quarter of the sample chose an experience that was more negative than their current state, as in Study 2. This is of particular interest in this study, as there were four options, and thus multiple options would have been both novel and a same or more positive experience. This provides a powerful demonstration that negative experiences are preferred when people are bored, even when positive novel alternatives are available.

Choice was influenced by the affective state that elicited boredom: 41% of participants who viewed positive images chose a more negative state, whereas only 1% of participants who viewed negative images chose a more negative state (see Figure 3); 92% of participants who viewed negative images chose a more positive state, whereas only 14% of participants who viewed positive images chose a more positive state.

To assess the impact of valence condition on choice of an image set that was the same or different, a logistic regression was conducted with valence condition (positive, negative) entered as the predictor and choice of image set (same or different) as the outcome variable. Valence condition predicted choice of image set (Wald $\chi^2 = 21.37, \beta = 2.40, p < .001, e^{\beta} = 11.06$), with participants in the

⁵ IAPS image numbers by group: intensely positive (5621, 8030, 8080, 8034, 8163, 8185, 8186, 8400, 8492, 7405, 8470, 8170, 8370, 5470, 8180, 5626, 5629, 8200), moderately positive (5982, 5594, 1604, 7430, 2598, 2360, 2388, 7200, 5201, 5202, 5551, 5814, 5725, 7280, 5781, 5891, 7325, 2035), intensely negative (1050, 6230, 6231, 6550, 6834, 1930, 9050, 9187, 2683, 9321, 9414, 9620, 9600, 9623, 9630, 9904, 1300, 1304), and moderately negative (2455, 2750, 6010, 2039, 2456, 2590, 9090, 2375.1, 9190, 9331, 2490, 9001, 9000, 2205, 2312, 2276, 2722, 7023).

⁶ Sample image IAPS numbers by group: intensely positive (8034, 7405, 5470), moderately positive (2035, 5202, 5891), moderately negative (2455, 9001, 9331), and intensely negative (1304, 9050, 9620).

Table 1
Means of Reported Outcomes Split by Condition, Affective Valence, and Arousal (Study 3)

Group	Reported boredom <i>M (SD)</i>	Desire for negative <i>M (SD)</i>	Desire for positive <i>M (SD)</i>
Condition			
Positive-moderate	5.74 (1.94)	2.29 (1.63)	5.50 (1.48)
Positive-high	5.51 (1.44)	2.43 (1.91)	5.29 (2.08)
Negative-moderate	6.09 (1.60)	1.46 (1.17)	5.80 (1.55)
Negative-high	5.84 (1.42)	1.97 (1.59)	4.70 (2.11)
Affective valence			
Positive	5.63 (1.71)	2.49 (1.73) _a	5.40 (1.79)
Negative	5.96 (1.51)	1.72 (1.42) _b	5.24 (1.93)
Arousal			
High	5.68 (1.43)	2.29 (1.74)	4.99 (2.10) _c
Moderate	5.90 (1.78)	1.93 (1.49)	5.64 (1.51) _d

Note. Means within a column with different subscripts differ at $p < .05$. There were no differences on any variable when compared across all four conditions.

negative conditions being more likely to choose an image set that differed from their assigned set.

We then tested our proposed mediation model. Valence condition (positive or negative) was expected to predict whether participants chose a more negative experience, and this relationship was expected to be mediated by desire for negative experiences. Specifically, it was predicted that participants bored by positive versus negative images would experience greater desire for negative experience, which would predict choosing a more negative image set. To examine this relationship, a mediation analysis was conducted utilizing the PROCESS script from Hayes (2013), with 10,000 bootstrapped samples. As shown in Figure 4, valence condition predicted desire for negative experiences ($b = -0.77$, $t = -2.93$, $p = .004$, $R^2 = .057$), with participants in the positive condition reporting a greater desire for negative experiences compared with participants in the negative condition. Desire for negative experiences predicted choice of image set ($b = -0.07$, $t = -2.36$, $p = .02$, $R^2 = .557$), with a stronger desire for negative experiences predicting a greater likelihood of choosing a more negative experience. In the mediational model, there was a direct effect of condition on the type of experience selected ($b = 1.13$, $t = 12.21$, $p < .001$, $R^2 = .539$), such that participants in the negative condition were more likely to choose a more positive experience. Consistent with predictions, there was also an indirect

effect of condition on choice through desire for negative experiences (indirect effect = .05, 95% CI [.007, .14]). Participants in the positive condition reported a stronger desire for negative experiences, and this desire predicted choice of a more negative experience. Planned analyses to test the mediational role of desire for something positive were not conducted, as the reported preliminary analyses showed valence condition did not impact desire for positive experiences.

Study 3 demonstrated that boredom results from positive and negative experiences as well as neutral or mundane experiences, as demonstrated in previous studies. Additionally, Study 3 showed that boredom resulting from positive experiences increases the desire for a negative experience, which predicts the choice of a more negative experience. This suggests that boredom encourages the pursuit of novel experiences that also vary in affective state.

Individual differences. An obvious question that arises from this investigation is, who are the people choosing negative experiences? Do they have some personality characteristic that accounts for this tendency? Several individual difference measures were collected across the studies, including gender (all studies), a measure of trait boredom (the BPS, Farmer & Sundberg, 1986; all studies), a measure of the Big 5 personality traits (the Ten Item Personality Inventory, Gosling, Rentfrow, & Swann, 2003; Study 1 and Study 2), a measure of trait optimism (the Revised Life Orientation Test, Scheier, Carver, & Bridges, 1994; Study 1), and a measure of trait self-control (the Brief Self-Control Scale, Tangney, Baumeister, & Boone, 2004; Study 1). In Study 1, gender

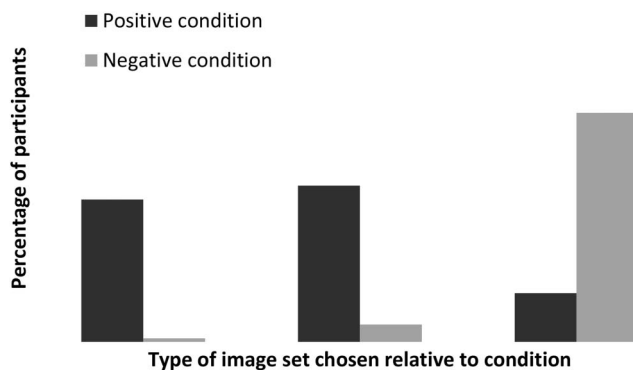


Figure 3. Percentage of participants who made each type of choice, split by the image condition they were assigned (Study 3).

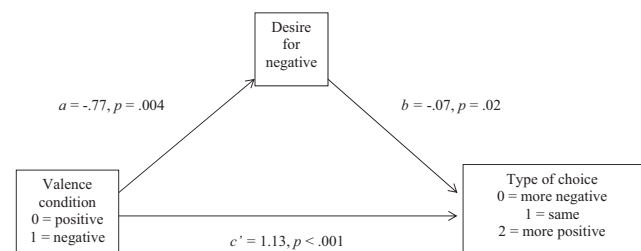


Figure 4. Desire for negative as a mediator for boredom and choice of image set (Study 3). Boredom indirectly affected choice through its influence on desire for negative (indirect effect = .05, 95% CI [.008, .14]).

predicted choice of image set, with males being more likely to choose the negative images than females ($b = -2.96, p = .004$); however, gender did not predict choice in any of the other studies. There was also no difference in level of boredom by gender in any study. No other individual difference measure significantly predicted choice in any study (see the online supplemental materials for all individual difference measures by study). Although our list of included individual difference measures was in no way exhaustive, our result may attest to the motivational strength of boredom. Previous research has suggested that powerful situational factors can overpower individual differences, resulting in similar behavior across people (e.g., Mischel, 1973; Mischel & Shoda, 1995). An intense state of boredom may be one such situation, serving as an intense motivator to change the current situation for most people. However, one must always be cautious about interpreting null findings, and therefore we suggest that an important direction for future research is to investigate differences between those who choose negative experiences while bored and those who do not. One promising measure may stem from reducer/augmenter theory, which argues that people differ in the degree to which they respond to sensory stimuli (Petrie, 1967). One study found that reducers (those who experience a lower level of sensory stimulation) were more likely to choose to watch an intensely negative film than to choose to complete questionnaires of common events after a boredom induction (Larsen & Zarate, 1991). Another individual difference of promise might be morbid curiosity (Litman, 2005; Oosterwijk, 2017; Zuckerman & Litle, 1986). At times, the desire to acquire new knowledge may outweigh the anticipated pleasure of gaining that knowledge (e.g., looking closely at a car accident; Oosterwijk, 2017). Although this information may be valuable in the future, as learning about the accident could help prevent the accident, the initial experience may be quite negative (Litman, 2005). Thus, a difference in the level of morbid curiosity than individuals possess could be an important potential individual difference.

General Discussion

The goal of the present investigation was to test the premise that boredom prompts the pursuit of novel experiences. Across three studies, bored participants were more likely than others to choose novel experiences and experiences that elicit a different affective state (even negative states). Further, the effect of state boredom on choice was mediated by changes in experienced desire (for novel or negative experiences), such that greater boredom predicted greater desire, which, in turn, predicted greater likelihood of choosing a negative experience.

Boredom

The current findings provide insight into the motivational and behavioral impacts of boredom. Researchers have long considered boredom an emotion (e.g., Damrad-Frye & Laird, 1989; Izard, 1977), yet boredom has received relatively little empirical investigation compared with other emotions. Our findings join a growing body of research suggesting that boredom is an active state (Danckert & Merrifield, 2016; Eastwood et al., 2012; Moynihan, Igou, & van Tilburg, 2017). Further, we were able to induce boredom through both positive and negative affective experiences,

suggesting that boredom can arise from any type of experience and not just from mundane tasks.

Functional accounts hold that emotions serve a specific purpose and result in changes in systems to enable goal pursuit (e.g., Carver, 2004; Frijda, 1986; Lench, Bench, Darbor, & Moore, 2015; Lench et al., 2011; Tracy, 2014). For any emotion to be functional, alternative goals must be pursued after a goal has been accomplished or an experience has lost its benefit (Bench & Lench, 2013). We proposed that boredom serves the functional role of indicating that a current situation has lost potential value and prompts the pursuit of alternative goals and experiences (Bench & Lench, 2013). The findings in the present investigation support this hypothesis and demonstrate that boredom can motivate the pursuit of alternate (even more negative) experiences.

These findings extend previous research by demonstrating that boredom motivates people to pursue two related types of alternative experiences: (1) novel experiences—those that are different from the experience that induced boredom; and (2) affectively different experiences—those that will elicit a different affective state than the stimuli that induced boredom. We found evidence for this in all studies, with boredom predicting the choice of an experience that was affectively different from the experience that elicited boredom. Indeed, in Study 3, participants who were bored by a positive experience desired and chose to engage with a more negative experience. An important point for future studies to address is whether this choice is associated with affectively different states eliciting stronger reactions that signal greater potential value (De Neys, 2012; Lench & Bench, 2012). Boredom could motivate the pursuit of alternative affective experiences by changing the perception of the intensity of states that differ from the state that induced boredom.

Antihedonism

It is worth noting that the findings could be considered a demonstration of an antihedonic choice, in that about one quarter of participants across studies chose to experience stimuli that have been rated by the population as negative. However, the idea of hedonistic choice is so fundamental to the current understanding of human behavior that it is difficult to offer clear evidence of antihedonic choice. In the present investigation, for example, one might argue that choosing the negative image set was actually a hedonistic choice if experiencing the negative images was less aversive than boredom. However, if choices were being made hedonistically (i.e., to increase the overall positive experience), one would expect participants to choose the novel positive options when available. This was not the case. Unfortunately, there are almost limitless rationalizations for how a negative option could become positive and is therefore not antihedonistic. It is safe to say, however, that boredom can drive people to choose experiences that are generally agreed to be negative. The negative images used in our studies were taken from the IAPS image database and chosen because of being reliably rated as negative in a standardized assessment (Lang et al., 2008).

Previous models have explained the pursuit of negative emotions and apparently antihedonic choice in a variety of ways (Andrade & Cohen, 2007; Erber & Erber, 2000; Harmon-Jones, Harmon-Jones, Amodio, & Gable, 2011; Tamir, 2009). According to models of mixed emotions, negative emotional experiences may

be chosen because they actually elicit mixed negative and positive reactions (Andrade & Cohen, 2007). They could not be considered antihedonic then, because the positive emotion provides a reward for the choice. Although the findings in the present investigation do not directly contradict this account, it seems unlikely that it could explain the full pattern of results. Previous research has also found that people have differing preferences for emotional experiences and may choose one negative emotion over another (Harmon-Jones et al., 2011). It is possible that boredom is less preferred than other negative emotions, and therefore choosing the negative image set could result in an experience that is less negative than boredom. Again, however, this argument would be limited, in that it cannot account for participants choosing the negative image option over the more positive image option, given that happiness is preferred to all negative emotions. Importantly, the current investigation did not give participants discrete emotion experiences to choose from (e.g., sad, angry, disgusting). Future research should consider the preference for the experience of boredom relative to other emotions more directly.

Finally, the current findings also provide evidence that anti-hedonic behaviors are not always the result of selecting a negative experience because it has long-term benefits. Previous research has demonstrated that negative emotional experiences will be chosen when there is a benefit for doing so (e.g., Tamir, 2009). Participants in the present investigation chose negative experiences without a stated benefit, and chose them over more affectively positive experiences. It is possible that participants expected a benefit for choosing the negative image set, but it would be unclear what would create this expectation or why they could not have expected the same benefit for choosing the other available image sets. Thus, the findings provide evidence that, at times, a negative emotional experience will be chosen over a more positive experience when there is not a benefit for said choice.

Variability in Choice

The percentage of participants that chose the more negative image set varied across studies. In Study 1, 55% of participants chose the more negative image set compared with 23% in Study 2. This difference was likely driven by the study design. Specifically, the sample images used in Study 1 were the same images that had been used to elicit boredom, making the more negative images the only novel option. This likely encouraged more participants to choose the more negative option at a relatively higher frequency. In Study 2, both image option samples consisted of images that had not been included in the boredom induction. Although this difference in design may seem small, it directly tests the relative importance of novelty (i.e., unfamiliar stimuli) versus affective novelty (i.e., stimuli that change affective state). Decades of research have demonstrated that people show a preference for novel things (e.g., Bashinski, Werner, & Rudy, 1985; P. S. Kaplan & Werner, 1986). Research has also found that repeated exposure to a stimulus decreases neuronal activity associated with exposure to that stimulus (Turk-Browne, Scholl, & Chun, 2008). Taken together, these findings suggest that completely novel sample options could have a large impact on choice. In Study 3, 74% of participants chose an image set that differed from the set that induced boredom, with 22% of participants choosing a more negative image set. This is a similar percentage to

Study 2 and again consisted of completely novel sample image options.

Limitations

The current studies have several limitations. First, the primary dependent variable in all three studies consisted of a single choice. We opted to design the studies in this way, as the duration of a state of boredom is unclear, and if boredom does motivate the pursuit of alternative experiences, the state of boredom, or at least the most powerful form of this motivation, could pass immediately after an alternative experience. Thus, multiple choices in a single study might require multiple boredom inductions. Future research should investigate whether an alternative experience immediately alleviates a state of boredom.

Future research should further explore whether choosing a novel and affectively novel stimulus actually leads to a different affective state or reduction in boredom. This is an important limitation to consider and could suggest that our findings reveal more about boredom and choice than about boredom and affective experience. Future research should directly assess whether the choice of new experiences while bored actually results in more positive affect. Additionally, our study design consisted of an experience that may be unlikely to occur in daily life. Although our findings demonstrate that it is possible to become bored from both positive and negative experiences (as well as neutral experiences), boredom in daily life is most likely to occur in neutral circumstances.

Finally, the study sample was composed of undergraduate college students in a research laboratory, which may limit the generalizability of the findings (e.g., to alternative age groups, other cultures, natural settings; Henrich, Heine, & Norenzayan, 2010; Sears, 1986). This sample and artificial setting were selected because of availability and to provide a more controlled test of the proposed motivational role of boredom. Future research should test these findings in a more natural setting and with a younger age group (e.g., students in a classroom), as well as in different cultures, for a better understanding of the generalizability of the findings (particularly as other cultures may prefer different experiences; Sims et al., 2018). Interestingly, boredom is more commonly reported in men (Chin, Markey, Bhargava, Kassam, & Loewenstein, 2017), whereas our sample consisted predominantly of women. This suggests that our sample might somewhat understate our results, as men report more boredom than women, and in previous research, men were more likely to choose negative experience than women (i.e., shock themselves; Wilson et al., 2014).

Conclusion

Practically speaking, the current findings speak to the potentially pervasive impact of boredom on behavior, given how frequently it occurs in daily life. This investigation demonstrated that state boredom is a motivating state. In fact, boredom is so powerful that it causes people to choose negative experiences. Outside of the laboratory, the desire for negative experiences that accompanies boredom could result in a variety of high-risk behaviors, leading to potentially serious consequences.

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